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## Framing Design to support Social Innovation

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# Framing Design to support Social Innovation: The Open4Citizens Project

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**Abstract:** In the recent years, new forms of organization have emerged, that have a disruptive power over the existing social and economic system. This phenomenon is challenging the traditional design approach, based on the idea that designers could design services for citizens and public administrations. In the new processes designers and service provider are simply mediating the process of co-creation and supporting the ecosystem for the value creation process. This paper will propose a logical framework for the design action, according to a multi-level structure that includes the *value-creation* level, in which design is a prerogative of the stakeholders participating in the value-creation action; the level of *infrastructuring* in which designers use their expert knowledge to support the interaction in the value-creation phase; and the level of *governance*, in which designers must figure out the structure of the ecosystem in which the value-creation process can be adequately organized and possibly scaled-up.

**Keywords:** Design for Services, Service Dominant Logic, Open4Citizen, open data.

## 1. Introduction

New emerging phenomena in the last few decades are posing new challenges in the way we live, use technology and organise our society. The balance between the various components of our society are challenging, new forms of inequality, large migration flows, new ways of organising our cities, new ways of managing our healthcare systems are the emerging results of the rapid change brought together by the convergence of different political social and technological occurrences.

The different directions that can be observed when looking at future perspectives of the present situation are often the result of unplanned interactions between different components of our society: local communities are finding new ways to use existing online social networking systems to create offline local communities, as in the case of the Social Streets (<http://www.socialstreet.it/>).

This type of initiatives enables citizens to organise new forms of value creation in a very independent way, in order to solve everyday problems or to find new forms of social cohesion in a context of growing atomisation of society. Citizens' problem solving attitude has been recognised as a form of *diffuse design* (Manzini 2015) that has always existed, but is now becoming highly visible because of the emergence of new tools to communicate, collaborate, interact, exchange and co-create value along peer to peer social structures.

This means that both focus and direction of the value creation process for solving several everyday problems are changing; this in turn is challenging the existing value creation mechanisms.

From a designer's perspective this shift is critical, because it questions the essence of the designer's professional profile: why should designers have a role in those mechanisms of change, and how can they best play that role?

The first question could be addressed with the consideration that a large part of the new forms of social interaction and innovation are using technologies, which are the result of a design action. Beside few cases of innovation in limited local contexts, the activation of new mechanisms of social innovation is often based on remote interaction and require citizens' engagement to understand the technical or service mechanisms they are going to use or change. Several new social initiatives are based on citizens' capability to use an aggregation of technical resources and infrastructure, which are not necessarily designed for the aims they are used for. Such resources need to be adapted to new forms of interaction, or new platforms and infrastructure could be generated, that support this emerging phenomenon. Hence the need for a design activity or design tools to address this new demand.

The second question, concerning the modalities of design interventions in such a context, requires a perspective change from a logic inspired by the industrialisation mechanisms of the last century to a new logic. The industrial logic was based on a linear sequence of value creation actions that ended at the point of sale. The *consumer* was using (*consuming*) the value created until the point of sale (Ramirez 1999). The consumer was therefore external to the value creation process.

The new logic is instead moving the value creation process towards the user, by giving him/her a role and clear responsibility in value *co-production*. The perspective shift is therefore from the value chain of the industrial logic to the *value constellation* (Normann and Ramirez 1994). Goods, which were the end result of a process of value production fully controlled by the producer, are now replaced by a bundle of material and immaterial components that support users to define and co-create the value. In an economic and social system in which the exchange of material goods is becoming less relevant than the exchange of information, knowledge and social value, enterprises can no longer deliver value independently. They can rather offer an aggregation of resources for collaboratively and interactively creating value (Vargo and Lusch 2008). This changes the framework for design action, which is no longer focused on the final good, but rather on the interaction in a value production process.

Together with the shift of the locus of value creation towards the user (or customer or citizen), the role of design and production are also shifting. This is particularly evident in the most recent services, such as Uber, Airbnb or even social networks. In those services the basic unit of value is produced by users: Uber's trips are operated by the drivers as well as Airbnb accommodations are provided by the platform customers; finally, the content of the most diffuse social networks (information, text, videos, photographs) are provided and exchanged among users.

The control of the value production process is shifted from producers to users through the creation of infrastructures, that support the users' interaction (Figure 1).

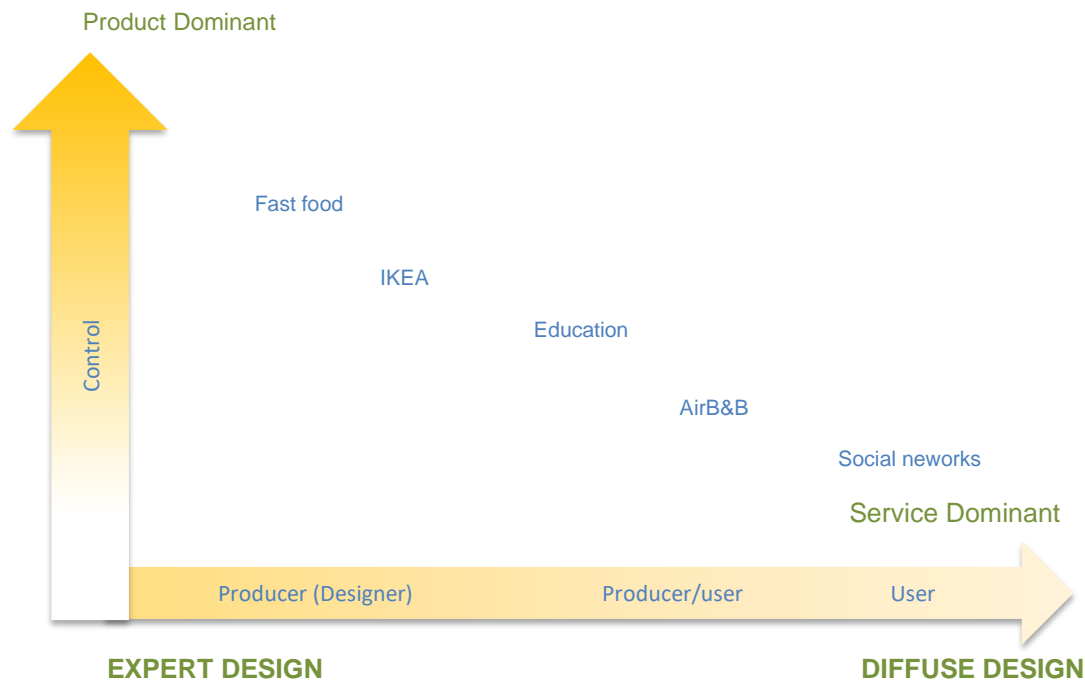


Figure 1 Shifting control over value creation processes

Although the value creation depends on the users' problem solving and design capabilities, expert design does not become irrelevant, but it is rather articulated into different levels: designers can become the trigger of facilitators of the interaction in the value creation process, but they are also responsible for the creation of the infrastructure that would support and trigger interaction. The platforms on which the interaction is happening needs indeed to be accurately designed, in order to make sure that the right process, the most adequate methods, the right people and the right technological infrastructures are provided to support the value creation process. Moreover, for the value creation process to be scalable and reproducible in different and larger contexts, the design of the infrastructure must be configured as an ecosystem in which relevant roles, actors and competences are aggregated and identified.

The case proposed in this paper gives a good overview of the articulation of the design action over the different levels of the framework outlined in this section. The following sections will therefore outline the project and propose a clearer framework for design action.

## 2. A Case: Open4Citizens

The Open4Citizens (O4C) project is a valuable ground for exploring this new approach to design. O4C is a project funded by the EU under the H2020 program. The starting point for this project is the increasing availability of large amounts of open data; the project's aim is to ensure broad citizens recognition of the potential of this type of data as a resource, thus enabling citizens to make meaningful use of open data.

In order to achieve this aim, the project is articulated in a number of hackathons, that are open not just to programmers, but also to citizens, interest groups, organisation and public authorities.

The O4C team include partners with different competences, including IT expert, anthropologists, Service Designers, Urban Designers, Researchers and Public Servants. Although not all of them would

define themselves as designers, their activity in the project can be considered as a design activity, therefore the paper will refer to them as the designers or the design team.

The design activity in this project is organised around hackathons, i.e. co-design sessions in which citizens can co-design new services, together with IT experts and any other relevant stakeholders. The design team is working to support this co-creation process, by framing the hackathon event in a cycle, including also pre-hackathon meetings, and post-hackathon development and test phases (Figure 2).

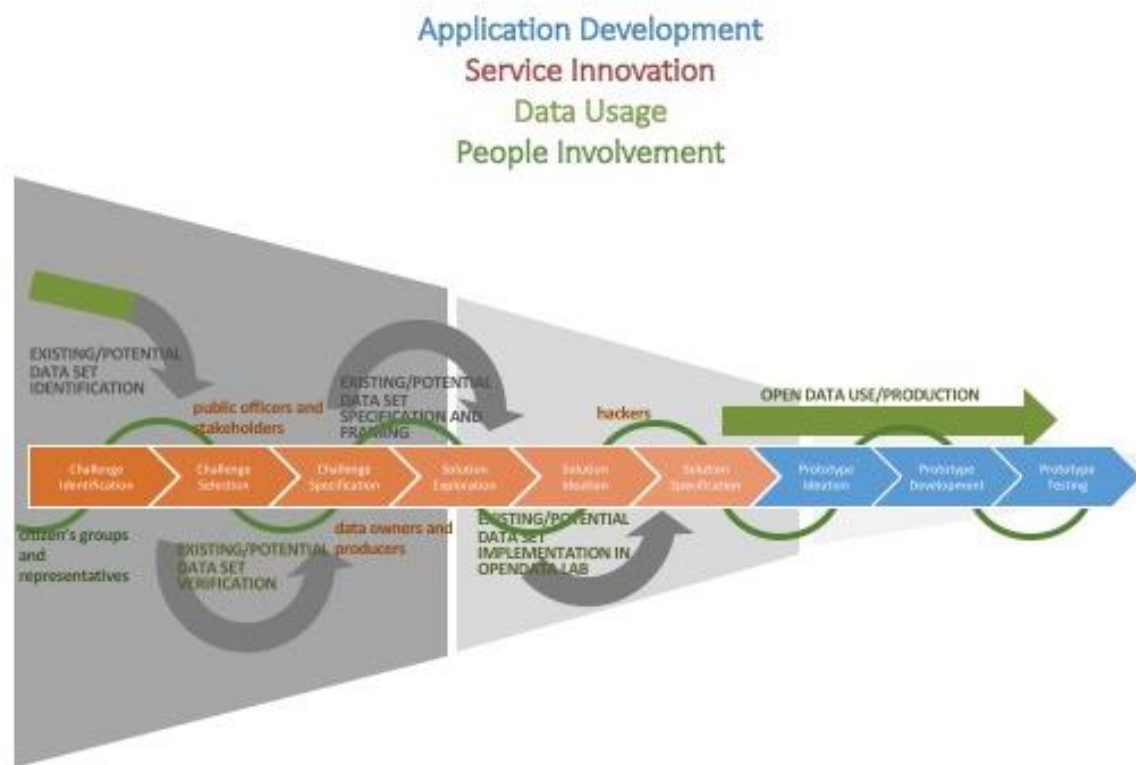


Figure 2 The O4C hackathon cycle

The activity of each of the OpenDataLab is articulated around a cycle of hackathons on specific The thematic focus for the O4C hackathon activities is chosen on the basis of three dimensions: a) the most relevant **challenges** in the local context, b) the possibility to aggregate an ecosystem of relevant **people** and c) the availability of **data**.

Starting from the pre-hackathon phase the challenges are explored in detail, the relevant actors are identified and invited to participate and the most relevant datasets are collected, to be used in the hackathon event.

While the pre- and post-hack phases consist of different activities, including meetings, workshops, interviews, service jams, coaching and facilitation, the hackathon event in itself is a 2-3 days long co-creation workshop, including citizens, coders, data owners, representatives of interest groups and public institutions.

## 2.1. The Pilots and the OpenDataLabs

The hackathons are organised in 5 different EU pilot locations: Barcelona, Copenhagen, Karlstad, Milan and Rotterdam. The activities in these 5 cities are focusing on different challenges. In Copenhagen team works on how services could better integrate newcomers into the Danish society.

The team in Rotterdam works closely with communities around the self-management of urban park areas. Karlstad zooms-in on healthcare services. In Barcelona the team works to improve the cultural opportunities in the city, and the Milan team is working on transparency in public works in the city.

The project vision is that the activities in the project result in the establishment of a network of *OpenDataLabs*; i.e. physical and digital meeting places for joint exploration of the value of data and how this makes up an actual resource for residents and interest groups.

Ideally the OpenDataLab-platform will enable connections between bottom-up initiatives and top-down policies: Supporting various parties to make better use of open data, through dialogue and co-creation. The primary focus for the various OpenDataLabs, is to raise awareness of data and increasing data literacy, as well as organizing the wider support for innovative ideas and for joint implementation. The scope of OpenDataLabs will not be only about developing apps, but might have a wider scope of economic and social value, contributing to new initiatives, public services, and to new businesses.

At the time of the submission of this paper the first hackathon cycle has been hosted in almost all the cities. This gives us the opportunity for some considerations, concerning the process of co-design with data, the organisation of the hackathon cycle, with the tools and methods proposed and the strategic definition of the function of the OpenDataLab.

## 2.2. Co-designing with data

The hackathons of the O4C project are different from most common hackathons. The latter are quite unstructured events in which a group of technical experts with a very high coding capability work together in a full-immersion 2-3 days' event, to generate new applications. The solutions resulting from such events might be interesting, but most often a large part of the resulting ideas are not implemented, because of the scarce relevance on social contexts they refer to. The O4C hackathon instead, brings together a broader and more varied group of include other participants, such as citizens, interest groups or public authorities and all those who could be seen as the *problem holders*. Therefore, most of the participants are not familiar with coding, but may instead have a deep knowledge of specific problems or needs. A more structured hackathon process has also been developed, in order to enable full and fruitful participation of such varied and diverse groups of participants. The new process consists of co-design a sequence of phases, from the need definition to the data validation. The *Hackathon Starter Kit* includes tools to apply in each phase.

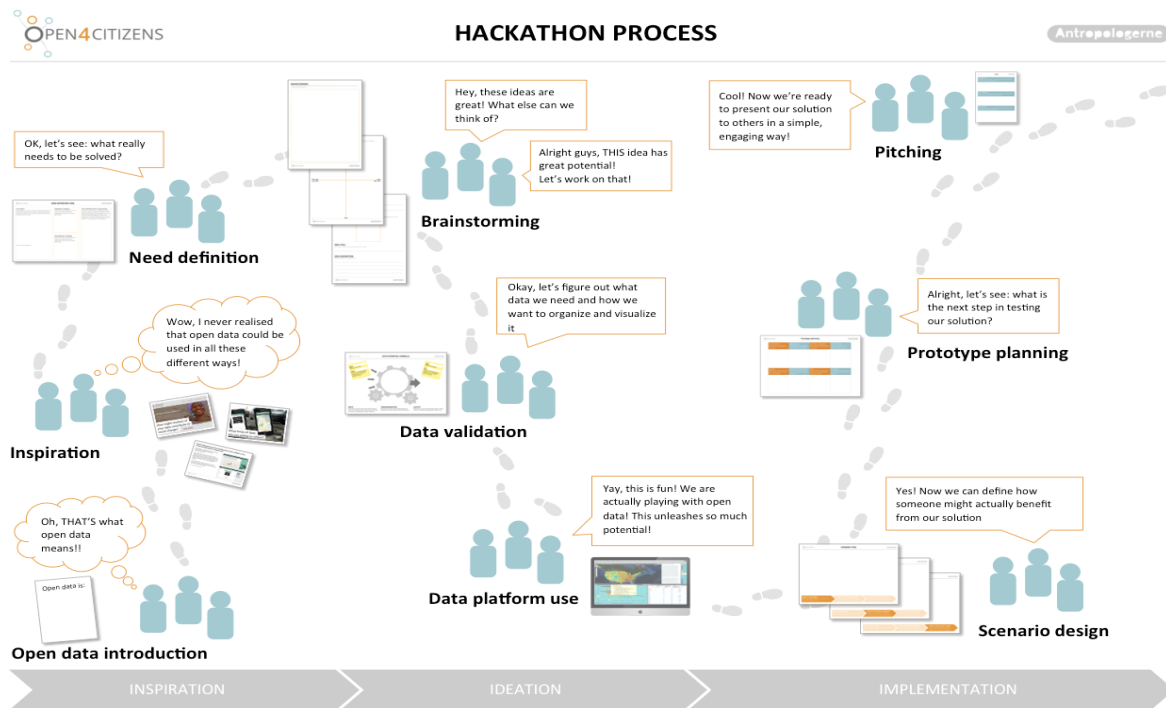


Figure 3 The hackathon starter kit

As outlined in Figure 3 the O4C hackathon process is articulated in three main phases: Inspiration, Ideation and Implementation.

In the initial phase inspiration cards are used to illustrate well known cases based on open data. This phase, together to the need definition phase have been developed in pre-hack meetings or in service jams, in order to gather information about the datasets that could be used during the hackathon event.

Hackathon events are co-design session organised along a sequence of phases, from the need definition to the data validation, in some cases the participants have been able to develop initial prototype to be tested in a post-hackathon phases. The hackathon event should be supported by an online platform including relevant datasets, links to other external datasets and tools to analyse, represent and manage data.

The ideation phase included a session of brainstorming and a data validation phase, in which the participants could look into the platform or search for external data sources.

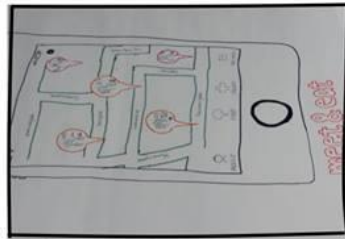
Another specific feature of the O4C hackathon concerns the access and use of open data. Although a large number of open datasets is now available, the retrieval of relevant data for the proposed challenges is not an easy exercise, due to the lack of specific data and the different formats used for the publication of the available data. The O4C team is developing and experimenting with an online platform including processual and digital tools to integrate data into the design activity. The platform as such includes links to relevant datasets, links to other external datasets and various selected tools to analyse, represent, visualize and manage data.

Depending on the quality and quantity of datasets available in each pilot, the participants were able to work in the implementation phase of the hackathon by developing concepts (Figure 4), graphical interface prototypes or even partly functioning apps.

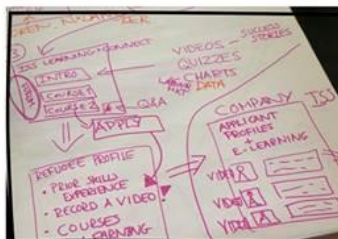




## 6 EMERGING SOLUTIONS | #HACKINTEGRATION2016



**APP | 'MeetNEat'**  
Danes and newcomers to Denmark  
cooking with each other



**SERVICE | Career & recruitment portal**  
Skills linking & development for migrants  
and companies



**SERVICE | 'Seek-A-Seeker'**  
Danes and former asylum seekers  
'adopting' new asylum seekers



**APP | 'Be My Ears'**  
Peer-to-peer cultural translation support



**APP | 'Sport-bridge'**  
Network development through sports



**APP & SERVICE | 'Bridge'**  
Refugee to refugee info exchange

Figure 4 Overview of the concepts developed in the "Integration hack" in Copenhagen

### 2.3. Design in the co-production phase

In the hackathon event the value creation activity was in the hands of the participants, who worked in groups that included people with different competences. The results of this activity depended very much on the composition of the design group and the competences of the participants. The presence of public authority representative in Rotterdam, for instance, opened a dialogue between the various city-makers and enabled better ways of articulating data requests, which seem to be crucial to ensure meaningful reuse of open data. The presence of the data owners in the Barcelona, instead was determinant to orient the outcome towards challenges that could better use the available datasets.

The role of designers in this process was to support, stimulate, inspire and trigger interaction and co-creation in the group. The inspiration cards (Figure 5), used in the early phase, were useful to introduce the discussion about open data. The cards included description of commonly used services, such as public transport apps, which opened the citizens' eyes about the potential of open data as a new resource.

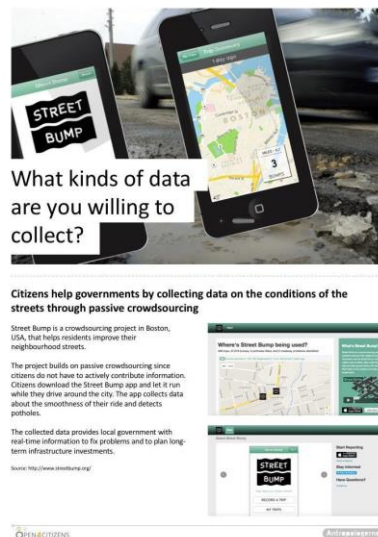


Figure 5 Example of an inspiration card

## 2.4. Infrastructuring the co-design process

Although the design team did not have direct control in the value co-production process, they had a critical role in the creation of the infrastructure that facilitated co-production. Beside the above mentioned hackathon starter kit, the preparation of the hackathon also consisted in the definition of an online repository of data and the aggregation of a relevant ecosystem of stakeholders in the pre-hack phase and the facilitation of prototype development in the post-hack phase.

The digital OpenDataLab platform includes relevant datasets, links to external datasets, digital collaboration tools, or app development tools, that facilitate data visualisation and coding (Figure 6).

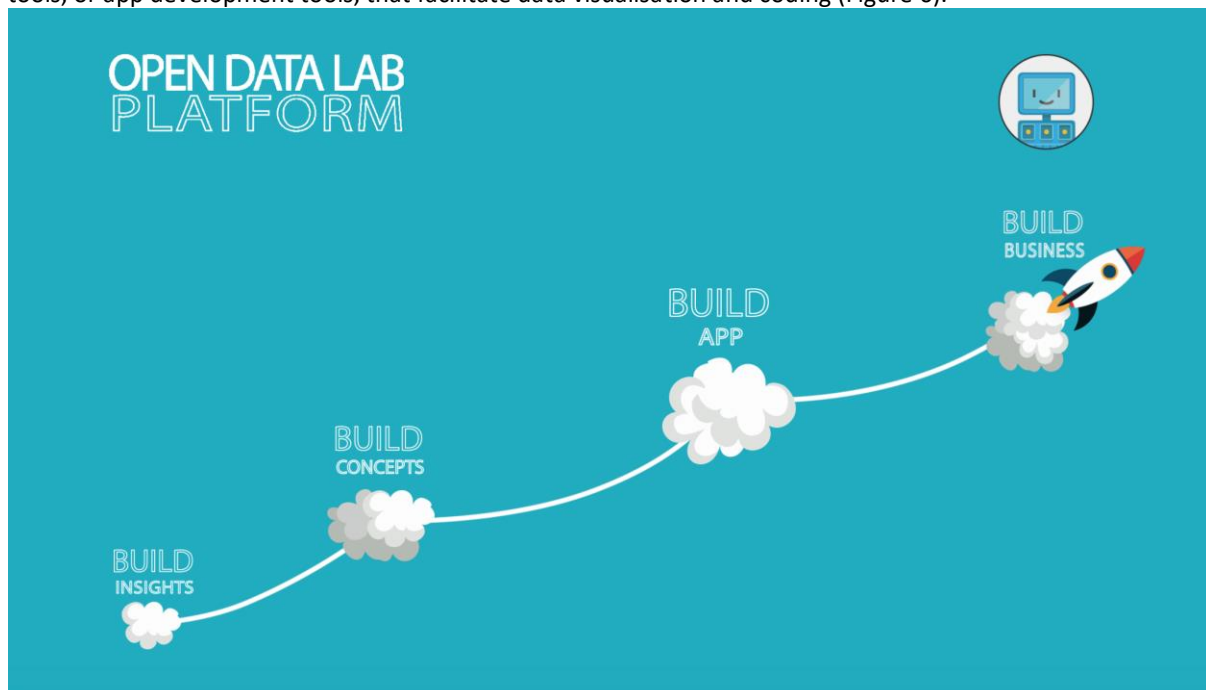


Figure 6 The home page of the OpenDataLab online platform ([www.opendatalab.eu](http://www.opendatalab.eu))

The process of infrastructuring innovation in the O4C process consisted in aggregating resources to support the co-production process, including: a) relevant technological infrastructures, such as data, visualisation tools, links to relevant design tools, b) an ecosystem of relevant stakeholders, who are able to contribute to the co-design process from different perspectives, with different competences

and with different motivations to develop and implement innovation and c) organisational tools, such as toolkits, information and communication tools, that support the interaction among stakeholders and technological elements in the ecosystem.

## 2.5. Setting the framework for innovation

The role of the design team in the O4C project is not limited to the facilitation of innovation along the hackathon process, it also defines the framework for a permanent physical or virtual infrastructure that will provide knowledge and services to facilitate innovation and design with open data.

The OpenDataLab (ODL) is the most tangible instance of this framework. The vision of it is inspired to the concept of FabLabs, which are physical places where materials are turned into products.

Fablabs are the places where common citizens, usually unfamiliar with the coding language of 3D printers, can meet IT experts and exchange knowledge, create partnerships and co-create new solutions. Like Fablabs, the ODL will represent an opportunity for citizens to concretely develop their ideas on new services based on open data. It is envisioned to be places where different stakeholders, knowledges and motivations come together to design and develop new services - making meaningful use of data.

A key activity of the ODL platform will be to work as a local advocate to push the demand for new datasets that could be created either by opening existing sources, or by transforming existing data into more suitable format or by collecting new crowdsourced data.

An ODL consists of a) a physical location, that represents a point of reference for innovation based on open data, b) the body of expert knowledge capable of bringing citizens, coders and other relevant stakeholders together, supporting the design process, the organisation and facilitation of events and assisting start-ups with funding opportunities, c) an online platform that includes links to existing datasets, a repository of open datasets generated for previous projects, as well as a curated/recommended collection of tools to support data-driven design.

Overall, the physical and online instances of the ODLs are supporting different scenarios of interaction between their users (Figure 7):

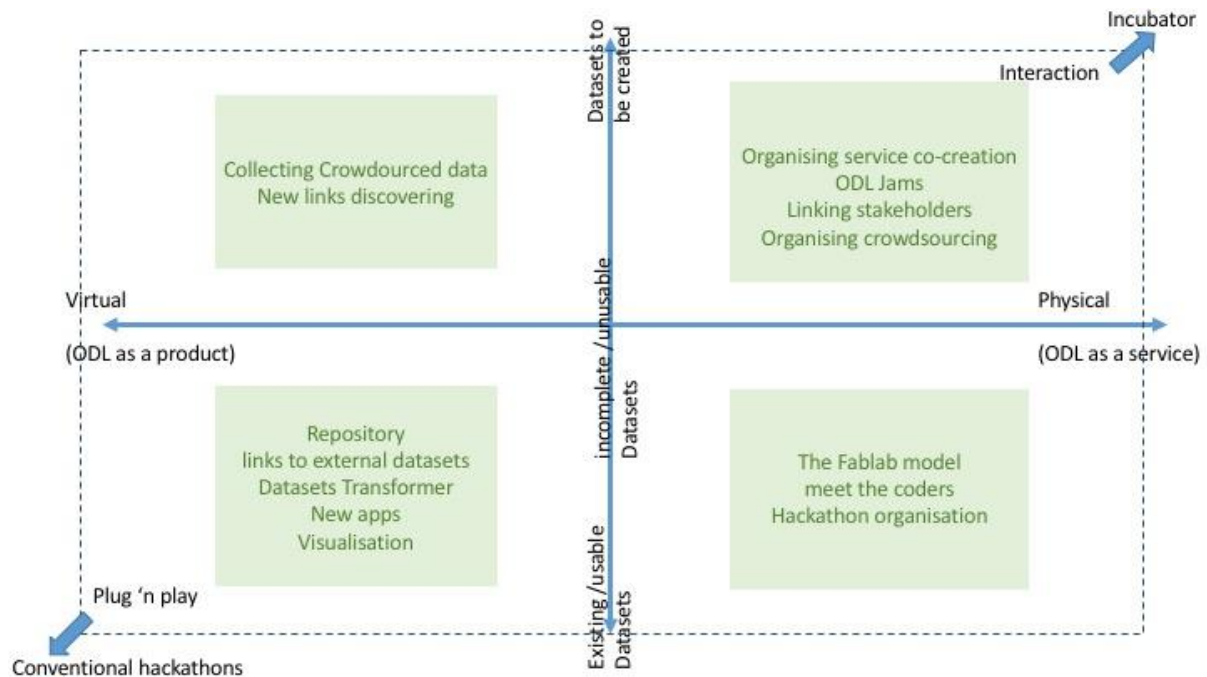


Figure 7 Different scenarios of interaction among users in the OpenDataLab

The online ODL platform will work as a repository of available datasets (lower-left quadrant), or a portal to access to other external datasets; in this case the online ODL platform will support more conventional hackathons, i.e. hackathons in which coders and citizens will be able to develop new apps. The ODL platform is possibly providing *plug'n play* tools that facilitate visualisation and data elaboration.

The online ODL platform will transform existing datasets that have been published in unsuitable format and will also support and organise the collection of crowdsourced data related to specific themes (higher-left quadrant)

The physical instance of the OpenDataLab will be a place where design activities are organised, for creating new service solutions based on open data; such activities include Open Data jams, organisation of data crowdsourcing and crowdfunding. In this sense the ODL will work as an incubator of new ideas and will reinforce citizens' awareness of the potential of open data (upper-right quadrant).

Finally, the ODL will be a physical place where citizens, hackers and other relevant stakeholders can meet to develop ideas based on existing datasets. In this sense the physical ODL will have the same function of hub for innovation as the Fablabs (lower-right quadrant).

When setting up the ODL as an innovation framework, the design team contributes by providing strategic design knowledge, to suggest concrete perspectives, to represent a map of possibilities and to aggregate an ecosystem of relevant stakeholders.

### 3. Discussion

The role of designers in facilitating participatory processes and social innovation has been discussed for a long time and in several occasions. Sanders and Stappers (2008) provide a complete overview of the way the inclusion of users has been discussed for several decades, in the discipline of design software design, in participatory processes and Co-design. Sanders and Stappers observe how the

maturation of this approach from a user centred approach to a more active involvement of users into the design process has challenged both the 'expert' mindset and the power structures of companies, by relinquishing control to potential customers, users and consumers.

This is clearly a hard challenge, which has often focused the discussion on how to capture and integrate users' knowledge into the design process (von Hippel 1994, von Hippel 1998), how to trigger and support users' design capability (Kimbell 2013) and how to provoke users' own design capabilities with different forms of prototyping (Hillgren, Seravalli et al. 2011).

Inspired by Vargo and Lush(2004), Kimbell (2011) observes that in a new service dominant logic the value production activity, and consequently the control of the design process, is passed on to users, and the designer can no longer *design services* but rather *design for services*, that means aggregating resources to support value creation in use. This perspective has also animated the debate on design for social innovation.

Manzini (2015) reflects on the role of designers, when the activity of design is no longer fully in control of the designers but is passed on to users. When new solutions come from the spontaneous initiatives of citizens and from a diffuse design capability, the role of the 'expert' designer need to be more clearly defined.

At the same time Bjorgvinsson et al (2010) and Hillgren et al (2011) are looking beyond the traditional project based approach, towards an activity of infrastructuring, to build framework conditions, such as mutual trust relationships, that could extend the design action over time and consolidate social innovation processes.

The lesson learned in the O4C project may cast more light on this debate, as it represents a design action distributed on three logical levels, a) the value co-production level, b) the level of 'infrastructuring' the value co-production and c) the level of governance of the ecosystem (Morelli and De Götzen 2016).

- a) A first, visible level is the value co-production process, during the hackathon. This is the process of interaction among citizens, IT experts, public authorities and other stakeholders for the creation of new solutions. The interaction at this level is depends on the stakeholders' **diffuse design** capability, generated by the negotiation among different problem solving attitudes and strategies of the participants. The designers' problem solving capabilities are just one of the components of this negotiation. At this level the designers' contribution consists in the use of inspiration cards, prototypes, visual representations and any other tool that can support the design process. The outcome of the collaborative design activity at this level are the design solutions generated by the heterogeneous competences involved in the project.
- b) The second logical level includes the generation of the infrastructure to support diffuse design, that includes the definition of blueprints, templates, modular structures and working frameworks (such as the hackathons themselves). This level makes large use of **expert design**, that means the various competences included in the design team, from the technical expert to the anthropologist, and, of course, the designers. The outcome of the design activity at this level consists in the organisation of the hackathon cycle and the body of knowledge for a systematic application of models, tools and IT infrastructures (the O4C online platform) that can be used in the hackathon.

- c) The third level consists of the definition of the ecosystem of actors, technical infrastructures and conditions to make the design action scalable and reproducible in different contexts. In the O4C project this logical level includes the definition of the OpenDataLab, its scenarios, conditions of use and the stakeholders that are crucial for its definition (Figure 7). The design knowledge needed at this level refers to the capability to understand the socio-technical implications of the proposed transformations into the ecosystem around the OpenDataLab: Therefore it implies a wider, transdisciplinary and systemic perspective of a specific problem area and the relevant ecosystem. Beside the OpenDataLab, the outcome of the design activity at this level are frameworks for action and policies (Table 1).

Table 1 The levels of design activities in O4C

	Who designs?	Design knowledge	Outcome
Value in use	Users, citizens, IT experts, public servants	<b>Diffuse design:</b> Citizens' problem solving capabilities	Apps and new services Citizens' awareness and empowerment
Infrastructuring	The design team	<b>Expert design:</b> based on disciplinary professional knowledge	Online O4C platforms Hackathon starter kit Hackathon cycles
Ecosystem	The design team	<b>Transdisciplinary and Strategic design:</b> design team's collaborative understanding of the socio-technical ecosystem around the opendatalab	OpenDataLab Framework for action, policies

## 4. Conclusions

The present socio-technical systems are bringing about radical changes in the mechanisms of value production and call for a substantial revision of the role of the stakeholders in the production system. Users are no longer passive receivers of the offerings of enterprises. Enterprises are no longer in full control of the value production process and the emerging design practices are no longer aimed at designing well defined outcomes (products or services) but rather at designing *for a purpose*, i.e. designing for services or for supporting value production.

In the debate about this new direction of design practice it is certainly important to develop tools and new practices that activate, empower and support users in the process of value production.

Several contributions already focus on how to ensure the interaction of the user in processes of value co-production. At the same time several authors have also invited reflection about a

broader view of the nature and role of design activities and their capability to support, codify, organise the value co-production process and possibly to scale it up beyond the single interaction instance.

The case illustrated in this paper is a contribution to the broader view, providing a logical framework for the interpretation and qualification of design practices at different levels and related to different

design knowledges: diffuse design, expert design and strategic design. Such framework can be a valuable starting point for refining and making explicit the possible impact offered by design and designers in shaping the next society..).

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